

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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| Application No. | 10/663,598  | Confirmation No.: 3266 |
| Applicant:      | Gerald Winton Lankford  |                        |
| Filed:          | September 16, 2003  |                        |
| Group Art Unit: | 2617  |                        |
| Examiner:       | Kwasi Karikari  |                        |
| Title:          | Apparatus, And Associated Method, For Facilitating Determination of Mobile Roaming Relationship |                        |
| Docket No.:     | 1578.109  |                        |
| Customer No.:   | 54120   |                        |

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**APPELLANT'S BRIEF ON APPEAL**

Dear Sir:

This brief is submitted in triplicate on behalf of Appellant for the application identified above. The Commissioner is hereby authorized to charge any fees which may be required pursuant to this Brief, or credit any overpayment, to Deposit Account No. 50-4515.

**REAL PARTY IN INTEREST**

The real party in interest for this appeal is the assignee of the application, Research in Motion Limited, by assignment executed on October 21, 2003, and recorded at Reel 014447 and Frame 0833 of the U.S. Patent and Trademark Office.

## **RELATED APPEALS AND INTERFERENCES**

There are no currently-pending appeals or interferences related to the present application.

## **STATUS OF CLAIMS**

In the Final Office Action dated March 19, 2008, Claims 1-7, 9-11, and 13-20 stand rejected under 35 U.S.C. § 103(a) as being anticipated by U.S. Patent Pub. No. 2005/0118998 to Sanchez Ferreras et al. (hereinafter “*Sanchez*”) in view of U.S. Patent Pub. No. 2004/0190522 to Aerrabotu et al. (hereinafter “*Aerrabotu*”) and further in view of U.S. Pat. No. 6,597,909 to Takubo et al. (hereinafter “*Takubo*”).

Claims 8 and 12 have been cancelled, without prejudice or disclaimer.

Appeal is made of the rejection of all of the claims, *i.e.*, Claims 1-7, 9-11, and 13-20.

## **STATUS OF AMENDMENTS**

No amendments to the claims have been filed subsequent to the final Office action dated March 19, 2008.

## **SUMMARY OF CLAIMED SUBJECT MATTER**

Claim 1 of the present invention is directed to an apparatus (page 11, lines 18-22; page 13, lines 10-11; Fig. 1, reference 42) configured for forming a roaming network list (page 11, lines 23-24; page 12, lines 1-3; page 13, lines 10-15; Figs. 1-3, reference 46) that identifies roaming arrangements between network operators of a cellular, or other mobile, communication system (page 9, lines 3-25; Fig. 1, reference 10) in which different networks are operated by different network operators (page 9, line 31 – page 10, line 4; page 13, lines 5-9; Fig. 1), and are

coupled together by way of a respective gateway (page 10, line 22-25; Fig. 1, reference 26) to a packet data network (page 10, line 22-25; Fig. 1, reference 28) which is coupled to the apparatus (page 11, lines 18-22; page 13, lines 10-11; Fig. 1, reference 42).

More specifically, the roaming network list (page 11, lines 23-24; page 12, lines 1-3; page 13, lines 10-15; Figs. 1-3, reference 46) is dynamically created through detection, at a detector (page 11, lines 23-33; Figs. 1 and 2, reference 48), of positional information of mobile nodes (page 5, lines 12-24; page 9, lines 3-11; page 9, line 33 – page 10, line 3; page 10, line 29 – page 11, line 7; Figs. 1 and 2, reference 12) that operate pursuant to communications with different ones of the networks (page 9, lines 31 – page 10, line 25; Figs. 1 and 2, references 16, 18) of the communication system (page 9, lines 3-25; Fig. 1, reference 10).

An associator (page 11, line 27 – page 12, line 8; Figs. 1 and 2, reference 52) associates mobile nodes (page 9, lines 3-25, Fig. 1, reference 12), by their home networks (page 9, lines 31 – page 10, line 25; Figs. 1 and 2, reference 16), with networks (page 9, lines 31 – page 10, line 25; Figs. 1 and 2, reference 18) with which the mobile nodes (page 5, lines 12-24; page 9, lines 3-11; page 9, line 33 – page 10, line 3; page 10, line 29 – page 11, line 7; Figs. 1 and 2, reference 12) are capable of communicating. Associations made by the associator (page 11, line 27 – page 12, line 8; Figs. 1 and 2, reference 52) are used to form the roaming network list (page 11, lines 23-24; page 12, lines 1-3; page 13, lines 10-15; Figs. 1-3, reference 46), which is stored in a storage element (page 11, line 23 – page 12, line 6; Fig. 1, reference 44). The roaming relationship associations are represented in the roaming network list (page 11, lines 23-24; page 12, lines 1-3; page 13, lines 10-15; Figs. 1-3, reference 46) by entries, individual ones of which, when aged beyond a selected age, are, without being deleted, given less weight than other entries (page 12, lines 5-6), that is, given less reliance as to the present state of the roaming capabilities identified by the entry (page 8, lines 29-32). Subsequent access to the list (page 11, lines 23-24; page 12, lines 1-3; page 13, lines 10-15; Figs. 1-3, reference 46) permits the roaming arrangements, dynamically determined, to be ascertained.

Claim 13 of the present invention is directed to a method (page 13, line 16 – page 14, line 4; Fig. 4, reference 80) for forming a roaming network list that identifies roaming arrangements between network operators of a cellular, or other mobile, communication system in which different networks are operated by different network operators, and are coupled together by way of a respective gateway to a packet data network which is coupled to the apparatus.

More specifically, values of positional information associated with a mobile node are detected (page 13, lines 20-21; Fig. 4, reference 82). The values of the positional information are then associated with a network portion of the communication system, and it is determined whether the network portion is a roaming network with which roaming relationships have been established (page 13, lines 22-27; Fig. 4, reference 84). A roaming network table is then formed that indicates with which of the network portions that the mobile node is capable of communicating (page 13, lines 28-30; Fig. 4, reference 86), individual entries of which, when aged beyond a selected age, are, without being deleted, given less weight than other entries (page 12, lines 5-6), that is, given less reliance as to the present state of the roaming capabilities identified by the entry (page 8, lines 29-32). The roaming network table is then accessed to determine roaming capabilities of selected coverage areas of selected network portions (page 13, lines 31-33; Fig. 4, reference 88).

#### **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1-7, 9-11, and 13-20 stand rejected under 35 U.S.C. § 103(a) as being anticipated by U.S. Patent Pub. No. 2005/0118998 to Sanchez Ferreras et al. (hereinafter “*Sanchez*”) in view of U.S. Patent Pub. No. 2004/0190522 to Aerrabotu et al. (hereinafter “*Aerrabotu*”) and further in view of U.S. Patent No. 6,597,909 to Takubo et al. (hereinafter “*Takubo*”).

## ARGUMENTS

### Rejection of Claim 1-7 and 9-11 under 35 U.S.C. § 103(a)

With reference to whether Claims 1-7 and 9-11 are patentable under 35 U.S.C. 103(a) over *Sanchez* in view of *Aerrabotu* and *Takubo*, *Sanchez* has been cited as fully disclosing Appellant's invention, except merely for the teaching that (1) “individual ones of the entries given less weight than other entries, without being deleted, when aged beyond a selected age” for which *Takubo* has been cited, and (2) that the network is a “packet data network coupled by way of said respective gateway to each of said respective network portions”, for which *Aerrabotu* has been cited.

With respect to *Takubo*, *Takubo* does not cure *Sanchez*'s failure to teach “individual ones of the entries given less weight than other entries, without being deleted, when aged beyond a selected age”. *Takubo*, at col. 7, line 8 – col. 8, line 20, teaches subscriber data registered in a priority table stored in a VLR memory, in which each subscriber data is given a certain priority, which priority may be based on any of a number of different elements (col. 7, lines 33-40), the most relevant, if any, to Appellants invention, being elements based on the date, or chronological order, in which the subscriber data was registered. The priority assigned to each subscriber is then used when memory for storing subscriber data becomes full and new subscriber data cannot be stored unless other subscriber data is deleted to make room for the new subscriber data. In such case, the “other subscriber data” that is to be deleted is determined according to which subscriber data has the lowest priority (*e.g.*, which subscriber data is the oldest).

Furthermore, due to the inherent nature of *Takubo*, the basis for determining which subscriber data to delete is a relative basis. That is, by way of example, in accordance with *Takubo*, if there is room to store data for only three subscribers, and if data for a new fourth subscriber must be stored, then the oldest subscriber data will be deleted, whether it is five minutes old or five months old. There is no “absolute” age against which the subscriber data of *Takubo* is compared before it is deleted.

In clear contrast to *Takubo*, Appellant teaches mobile node value entries being given (1) less weight, without being deleted, when (2) aged beyond a selected age. Thus, not only does Appellant's claimed invention not delete subscriber data, in contrast to *Takubo*, but Appellant's claimed invention also makes a decision to give less weight to subscriber data based on a selected age, that is, an age that is not relative to the age of any or all other subscriber data entries. Memory constraints can obviously become an issue at some point, which is what *Takubo* addresses, but that is not what Appellant is addressing in independent Claim 1; *Takubo* is therefore not even relevant to Appellant's invention.

Still further, it is submitted that it would be improper to combine *Takubo* with *Sanchez* because the priority table of *Takubo* does not include any provision for giving less weight to entries aged more than a selected age. Without such provision, the intended functionality of Appellant's invention would be destroyed. Moreover, there is no suggestion in either *Takubo* or *Sanchez* to combine the two references together.

With respect to *Aerrabotu*, *Aerrabotu* does not cure *Sanchez*'s failure to teach a "packet data network coupled by way of said respective gateway to each of said respective network portions". While *Aerrabotu* teaches a packet data network for coupling a packet filter to an emergency HLR (see, e.g., Fig. 1), *Aerrabotu* fails to teach or suggest a packet data network and gateway through which a detector receives positional information of a mobile node as recited by Appellants in independent Claim 1.

Even if, for the sake of argument, the packet data network of *Aerrabotu* did cure the identified deficiency of *Sanchez*, it is submitted that it would be improper to combine *Aerrabotu* with *Sanchez*. First, it is not at all clear how the two references could be combined without arbitrarily (and improperly) picking and choosing different elements of each reference and assembling them in manners not taught by either reference, but only with the benefit of hindsight, to interpose a packet data network between the detector and each network portion by way of respective gateways. Second, there is no teaching, suggestion, or motivation in either *Aerrabotu* or *Sanchez* to combine the two references together. The latter argument was rebutted

in the Office action dated March 19, 2008, by asserting that *Aerrabotu* and *Sanchez* are analogous art; however, it is not at all clear how simply being analogous art provides a teaching, suggestion, or motivation to combine *Aerrabotu* and *Sanchez*.

Because Claims 1-7 and 9-11 depend from and further limit independent Claim 1, in a patentable sense, it is respectfully submitted that the rejection of Claims 1-7 and 9-11 should, for the reasons set forth above, also be overruled.

Rejection of Claim 13-20 under 35 U.S.C. § 103(a)

With reference to whether Claims 13-20 are patentable under 35 U.S.C. 103(a) over *Sanchez* in view of *Aerrabotu* and *Takubo*, *Sanchez* has been cited as fully disclosing Appellant's invention, except merely for the teaching that (1) "individual ones of the entries given less weight than other entries, without being deleted, when aged beyond a selected age" for which *Takubo* has been cited, and (2) that the network is a "packet data network coupled by way of said respective gateway to each of said respective network portions", for which *Aerrabotu* has been cited.

With respect to *Takubo*, *Takubo* does not cure *Sanchez*'s failure to teach "individual ones of the entries given less weight than other entries, without being deleted, when aged beyond a selected age". *Takubo*, at col. 7, line 8 – col. 8, line 20, teaches subscriber data registered in a priority table stored in a VLR memory, in which each subscriber data is given a certain priority, which priority may be based on any of a number of different elements (col. 7, lines 33-40), the most relevant, if any, to Appellants invention, being elements based on the date, or chronological order, in which the subscriber data was registered. The priority assigned to each subscriber is then used when memory for storing subscriber data becomes full and new subscriber data cannot be stored unless other subscriber data is deleted to make room for the new subscriber data. In such case, the "other subscriber data" that is to be deleted is determined according to which subscriber data has the lowest priority (*e.g.*, which subscriber data is the oldest).

Furthermore, due to the inherent nature of *Takubo*, the basis for determining which subscriber data to delete is a relative basis. That is, by way of example, in accordance with *Takubo*, if there is room to store data for only three subscribers, and if data for a new fourth subscriber must be stored, then the oldest subscriber data will be deleted, whether it is five minutes old or five months old. There is no “absolute” age against which the subscriber data of *Takubo* is compared before it is deleted.

In clear contrast to *Takubo*, Appellant teaches mobile node value entries being given (1) less weight, without being deleted, when (2) aged beyond a selected age. Thus, not only does Appellant’s claimed invention not delete subscriber data, in contrast to *Takubo*, but Appellant’s claimed invention also makes a decision to give less weight to subscriber data based on a selected age, that is, an age that is not relative to the age of any or all other subscriber data entries. Memory constraints can obviously become an issue at some point, which is what *Takubo* addresses, but that is not what Appellant is addressing in independent Claim 13; *Takubo* is therefore not even relevant to Appellant’s invention.

Still further, it is submitted that it would be improper to combine *Takubo* with *Sanchez* because the priority table of *Takubo* does not include any provision for giving less weight to entries aged more than a selected age. Without such provision, the intended functionality of Appellant’s invention would be destroyed. Moreover, there is no teaching, suggestion, or motivation in either *Takubo* or *Sanchez* to combine the two references together.

With respect to *Aerrabotu*, *Aerrabotu* does not cure *Sanchez*’s failure to teach a “packet data network coupled by way of said respective gateway to each of said respective network portions”. While *Aerrabotu* teaches a packet data network for coupling a packet filter to an emergency HLR (see, e.g., Fig. 1), *Aerrabotu* fails to teach or suggest a packet data network and gateway through which a detector receives positional information of a mobile node as recited by Appellants in independent Claim 13.

Even if, for the sake of argument, the packet data network of *Aerrabotu* did cure the identified deficiency of *Sanchez*, it is submitted that it would be improper to combine *Aerrabotu*



with *Sanchez*. First, it is not at all clear how the two references could be combined without arbitrarily (and improperly) picking and choosing different elements of each reference and assembling them in manners not taught by either reference, but only with the benefit of hindsight, to interpose a packet data network between the detector and each network portion by way of respective gateways. Second, there is no teaching, suggestion, or motivation in either *Aerrabotu* or *Sanchez* to combine the two references together. The latter argument was rebutted in the Office action dated March 19, 2008, by asserting that *Aerrabotu* and *Sanchez* are analogous art; however, it is not at all clear how simply being analogous art provides a teaching, suggestion, or motivation to combine *Aerrabotu* and *Sanchez*.

Because Claims 14-20 depend from and further limit independent Claim 13, in a patentable sense, it is respectfully submitted that the rejection of Claims 14-20 should, for the reasons set forth above, also be overruled.

#### Summary

In summary, *Takubo* teaches how to determine which subscriber data to delete when memory is full, in contrast to Appellant's claimed invention which teaches how to give different weight to mobile node value entries based on aging past a selected age. In further contrast to Appellant's invention, *Aerrabotu* fails to teach or suggest a packet data network and gateway through which a detector receives positional information of a mobile node. Still further, it is respectfully submitted that it would be improper to combine either *Aerrabotu* or *Takubo* with *Sanchez*.

### **CONCLUSION**

In view of the foregoing, it is apparent that of the cited references, either singularly or in any combination, teach, suggest, or render obvious the unique combination now recited in independent Claims 1 and 13. It is therefore respectfully submitted that Claims 1 and 13 clearly

and precisely distinguish over the cited combinations of references in a patentable sense, and are therefore allowable over those references and the remaining references of record. Accordingly, it is respectfully requested that the rejection of Claims 1 and 13 under 35 U.S.C. § 103(a) as being unpatentable over *Sanchez* in view of *Aerrabotu* and *Takubo*, be overruled.

Claims 2-7, 9-11, and 14-20 depend from and further limit independent Claims 1 and 13, in a patentable sense, and, for this reason and the reasons set forth above, are also deemed to be in condition for allowance. Accordingly, it is respectfully requested that the rejections of dependent Claims 2-7, 9-11, and 14-20 be overruled, as well.

Applicant respectfully requests that the Board of Appeals reverse the decision of the Examiner in which all of the pending claims of the Application were rejected, so that the application may be passed to issue.

Respectfully submitted,

/ Robert H. Kelly /

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Robert H. Kelly  
Reg. No. 33,922

KELLY & KRAUSE, LP  
6600 LBJ Freeway, Suite 275  
Dallas, Texas 75240  
Telephone: (214) 446-6684  
Fax: (214) 446-6692  
[robert.kelly@kelly-krause.com](mailto:robert.kelly@kelly-krause.com)

## **CLAIMS APPENDIX**

1. Apparatus for a radio communication system having a packet data network and multiple network portions, each of said network portions being connected to said packet data network by way of a respective gateway, said apparatus comprising:

a detector adapted to receive values of positional information associated with mobile nodes during operation thereof to communicate by way of said packet data network coupled by way of said respective gateway to each of said respective network portions in whose coverage areas that the mobile nodes, respectively, are positioned, said detector configured to form indications of the values of the positional information;

an associator adapted to receive the indications formed by said detector of the values of the positional information, said associator configured to associate positioning of each of the mobile nodes with a corresponding respective network portion, through which communications are effectuated, thereby to identify roaming relationships between each of the mobile nodes and the corresponding network portions when the mobile nodes are roaming; and

a storage element coupled to said associator, said storage element configured to store values representative of associations formed by said associator, the values together forming a roaming network table indicating the roaming relationships, the values forming entries, the mobile nodes identified in terms of their respective home network portions and individual ones of the entries given less weight than other entries, without being deleted, when aged beyond a selected age, the roaming network table accessible to identify the roaming relationships identified therein, usable subsequently to determine roaming capabilities of selected coverage areas of selected network portions.

2. The apparatus of claim 1 wherein each mobile node has an identifier associated therewith and wherein said detector is further adapted to receive the identifier and for detecting values thereof.

3. The apparatus of claim 2 wherein the radio communication system comprises a cellular radio communication system that provides for GPRS (General Packet Radio Service) and wherein the identifier associated with each mobile node comprises at least a portion of an IMSI (International Mobile Subscriber Identity) number.

4. The apparatus of claim 3 wherein the IMSI number includes a Mobile Network Code (MNC) and wherein the at least the portion of the IMSI number of which said detector detects the values comprises the Mobile Network Code, the Mobile Network Code identifying a home network portion associated with each mobile node, the home network portion a network portion of the multiple network portions.

5. The apparatus of claim 3 wherein the IMSI number includes a Mobile Country Code (MCC) and wherein the at least the portion of the IMSI number of which said detector detects the values comprises the Mobile Country Code.

6. The apparatus of claim 1 wherein each mobile node registers with a network portion of the multiple network portions at selected times and wherein the positional information detected by said detector is communicated by each mobile node pursuant to registration with the network part.

7. The apparatus of claim 1 wherein communications of each mobile node are formatted into messages, the messages having header parts and wherein the positional information detected by said detector is embodied in the header parts of the messages.

8. (Canceled)

9. The apparatus of claim 1 wherein the roaming network table further includes an indication of a time at which the values representative of the associations are stored at said storage element.

10. The apparatus of claim 9 further comprising a roaming table entry deleter coupled to said storage element, said roaming table entry deleter selectably operable to delete selected values of the roaming entry table maintained at said storage element when aged beyond the selected age.

11. The apparatus of claim 10 wherein said roaming table entry deleter deletes values of the roaming network table stored thereat for longer than a selected time period, the selected time period identifying aging beyond the selected age.

12. (Canceled)

13. A method for a radio communication system having a packet data network and multiple network portions, each of said network portions being connected to said packet data network by way of a respective gateway, said method comprising the operations of:

detecting values of positional information, the positional information associated with mobile nodes and communicated by the mobile nodes by way of said packet data network coupled by way of said respective gateway to each of said respective network portions in whose coverage areas the mobile nodes, respectively, are positioned;

associating positioning of each of the mobile nodes with corresponding network portions, respectively, through which communications are effectuated, thereby to identify roaming

relationships between each of the mobile nodes and the corresponding network portions when the mobile nodes are roaming; and

forming a roaming network table indicating the roaming relationships, the roaming network table comprised of entries in which the mobile nodes are identified in terms of their respective home network portions of which individual ones of the entries are, without being deleted, given less weight than other entries, when aged beyond a selected age, the roaming network table accessible to identify the roaming relationships identified therein; and

using the roaming network table to determine roaming capabilities of selected coverage areas of selected network portions.

14. The method of claim 13 wherein said operation of detecting further comprises detecting values that identify each mobile node.

15. The method of claim 14 wherein the radio communication system comprises a cellular radio communication system that provides for GPRS (General Packet Radio Service) and wherein the values that identify each mobile node during said operation of detecting comprise at least a portion of an IMSI (International Mobile Subscriber Identity) number.

16. The method of claim 15 wherein the at least the portion of the IMSI number comprises a mobile network code, the mobile network code identifying a home network portion associated with each mobile node, the home network portion a network portion of the multiple network portions.

17. The method of claim 15 wherein the at least the portion of the IMSI number comprises a mobile country code.

18. The method of claim 15 wherein said operation of forming the roaming table further comprises identifying times at which values are entered thereat.

19. The method of claim 18 further comprising the operations of accessing the roaming network table and determining the roaming relationships indicated therein.

20. The method of claim 13 further comprising the operation of deleting entries out of the roaming network table once aged beyond the selected age.

Appl. No. 10/663,598  
Appeal Brief dated September 15, 2008  
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Appendices

## **EVIDENCE APPENDIX**

None



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Appendices

## **RELATED PROCEEDINGS APPENDIX**

None